

IN THE CLAIMS:

Please cancel claim 1 in the application and add the following new claims:

21. A virion-constrained nanoparticle comprising a non-plant virion coat protein shell surrounding a nanoparticle of non-viral origin selected from the group consisting of organic, inorganic and organo-metallic materials.

22. The plant virion-constrained nanoparticle according to claim 21, wherein said nanoparticle of non-viral origin comprises an organic material.

23. The virion-constrained nanoparticle according to claim 21, wherein said nanoparticle of non-viral origin comprises an inorganic material.

24. The virion-constrained nanoparticle according to claim 21, wherein said nanoparticle of non-viral origin comprises an organo-metallic material.

25. A virion constrained nanoparticle according to claim 21, wherein said virion constrained nanoparticle comprises particles having dimensions substantially in the nanometer range and which comprise a collection of atoms and/or molecules ranging in number from 1 to the number that can fit inside the volume of the selected virion whereby the maximum number of atoms and/or molecules in a virion constrained nanoparticle is determined by the size of the nanoparticle and the size of the virion inner cavity.

26. A virion constrained nanoparticle according to claim 21, wherein said virion is selected from the group consisting of prokaryotic, protozoan, eukaryotic viruses and virus-like particles Bacteriophage and Protozoan viruses.

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B'  
27. A virion constrained nanoparticle according to claim 26, wherein prokaryotic viruses comprise Plasmaviridae, SSv1 group viruses, ~~Lipothrixviridae~~, Cystoviridae, Corticoviridae, Myoviridae, Siphoviridae, Podoviridae, Microviridae, Inoviridae and Leviviridae.

28. A virion constrained nanoparticle according to claim 21, wherein said virion is a eukaryotic invertebrate selected from the group consisting of Poxviridae, Entomopoxviridae, Baculoviridae, Eubaculovirinae, Nudibaculovirinae, Polydnaviridae, Ichnovirus, Iridoviridae, Bracovirus, Parvoviridae, Flaviviridae, Tagviridae, Bunyaviridae, Rhabdoviridae, Reoviridae, Bimaviridae, Picornaviridae, Tetraviridae and Nadoviridae.

29. A process for producing virion-constrained nanoparticles comprising a non-plant virion coat protein shell surrounding a nanoparticle of non-viral origin comprising the following steps:

a) providing isolated and substantially purified animal virion coat protein shells containing controllable gates;

b) incubating the virion coat protein shell in a solution comprising one or more organic, inorganic, and/or organometallic materials under conditions that permit controlled entry of the materials into the virion shell;

c) adjusting the solution conditions in such a manner that the virion coat protein shell entraps the materials of step b); and

d) isolating the virion-constrained nanoparticles produced.

30. The process according to claim 29, wherein said coat protein of said virion is the cowpea chlorotic mottle virus coat protein.

31. The process according to claim 29, wherein said nanoparticle of non-viral origin comprises an organic material.

32. The process according to claim 29, wherein said nanoparticle of non-viral origin comprises an inorganic material.

33. The process according to claim 29, wherein said nanoparticle of non-viral origin comprises an organo-metallic material.

34. A process according to claim 29, wherein said virion is selected from the group consisting of prokaryotic, protozoan and eukaryotic viruses and virus-like particles.